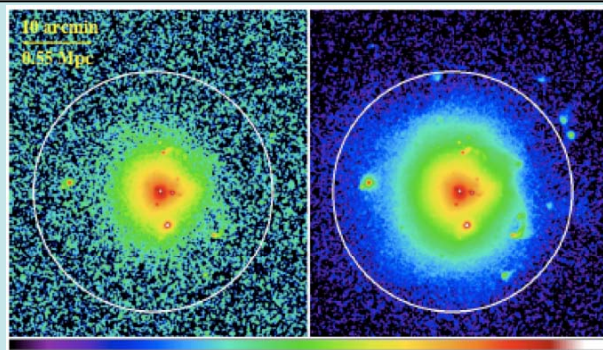
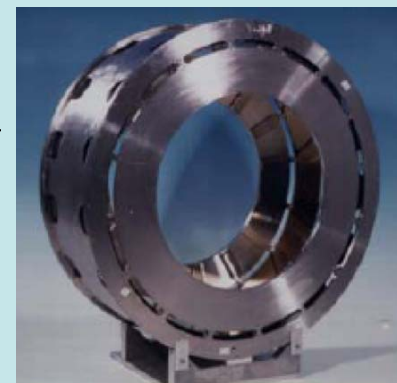
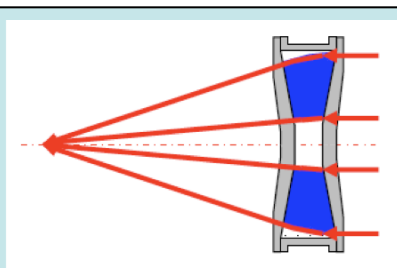
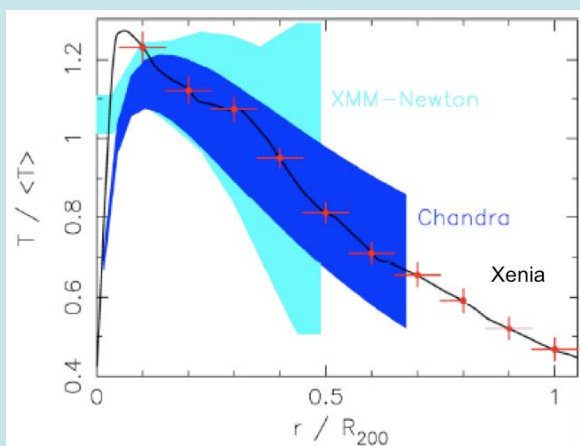


XENIA: High Angular Resolution Imager

The *High Angular Resolution Imager (HARI)* will enable imaging of an area of 1.4×1.4 degree² with angular resolution of 15 arcseconds for off-axis angles below 38 arcminutes. The wide field of view is provided by a modification to the Wolter I design in which the surface shape is a polynomial designed to minimize off-axis aberrations. The inner shells are shorter than the outer shells to further improve the PSF. The effective area is typically about 600 cm² at 1 keV. The focal plane will contain an array of either CCDs or CMOS detectors with energy resolution of 50-150 eV FWHM (0.3-5.0 keV)



The wide field of view and low background of the HARI allow studies of extended low surface brightness objects such as the outer regions of clusters. The figure to the left shows the vast improvement between an XMM observation (left) and a Xenia HARI observation (right). The circle is R_{200} . The lower figure shows that Xenia can track gas temperature to the virial radius, allowing Xenia to probe the bulk of the baryons and the boundary between the IGM and the cluster gas.



Top: Schematic drawing of the X-ray mirrors indicating the variation of shell length between the inner and outer shells. Middle: A prototype polynomial wide-field mirror shell made by INAF-OAB. Below: Half-energy width of mirror Point Spread Function vs off-axis angle, showing the relatively flat PSF response of the wide-angle mirror design.

